

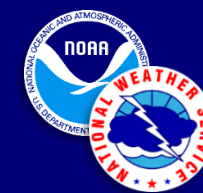
# **Hurricane Overview 2020 Season Recap 2021 Season Outlook**

**Honolulu-Pacific Federal Executive Board  
May 27, 2021**

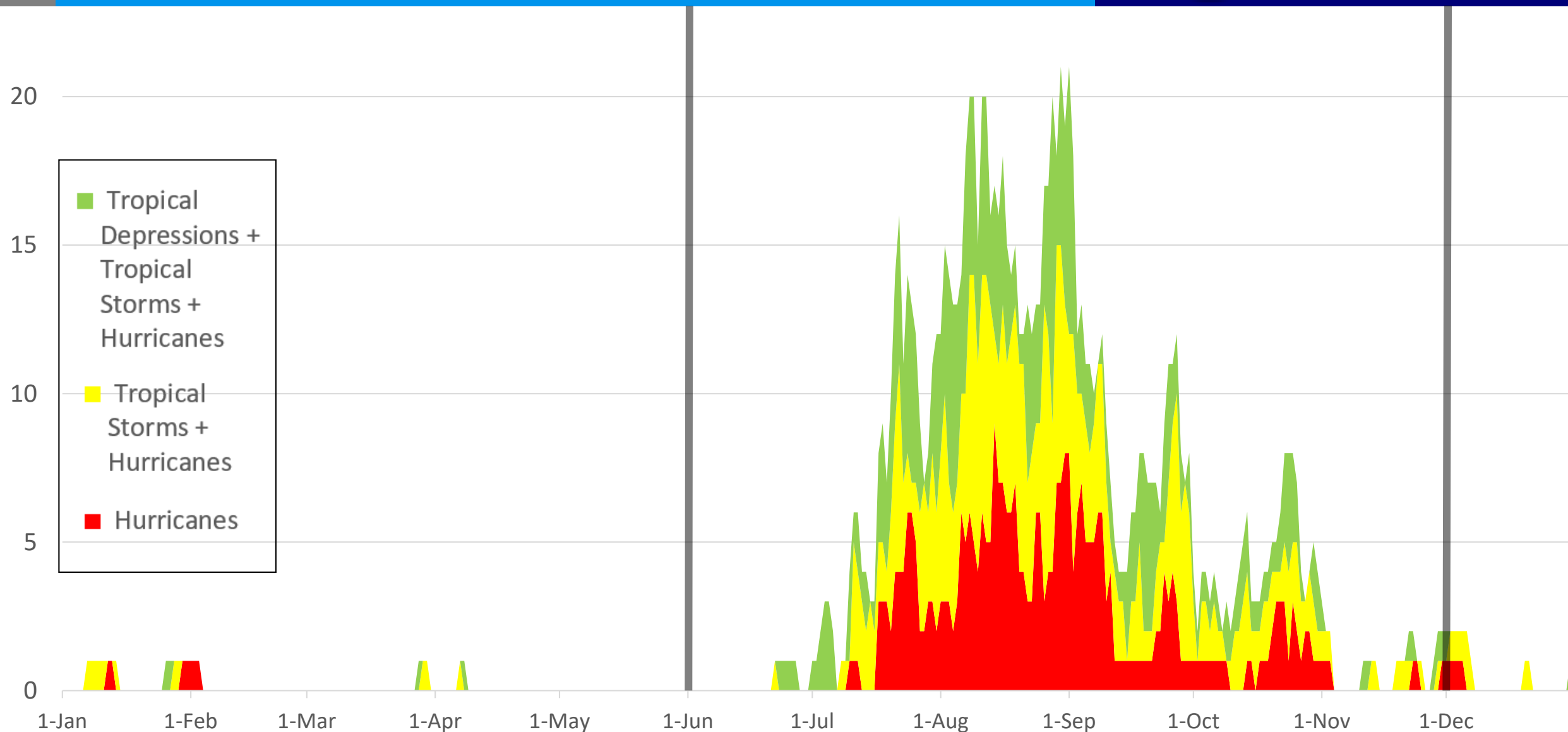
**Leigh Anne Eaton, Emergency Response Specialist Meteorologist  
National Weather Service, Pacific Region Headquarters**

# Tropical Cyclone Activity By Day

Hurricanes/Tropical Storms/Tropical Depressions 1950-2020

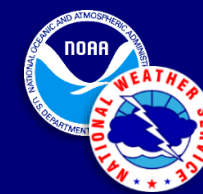


Central Pacific  
Hurricane Center

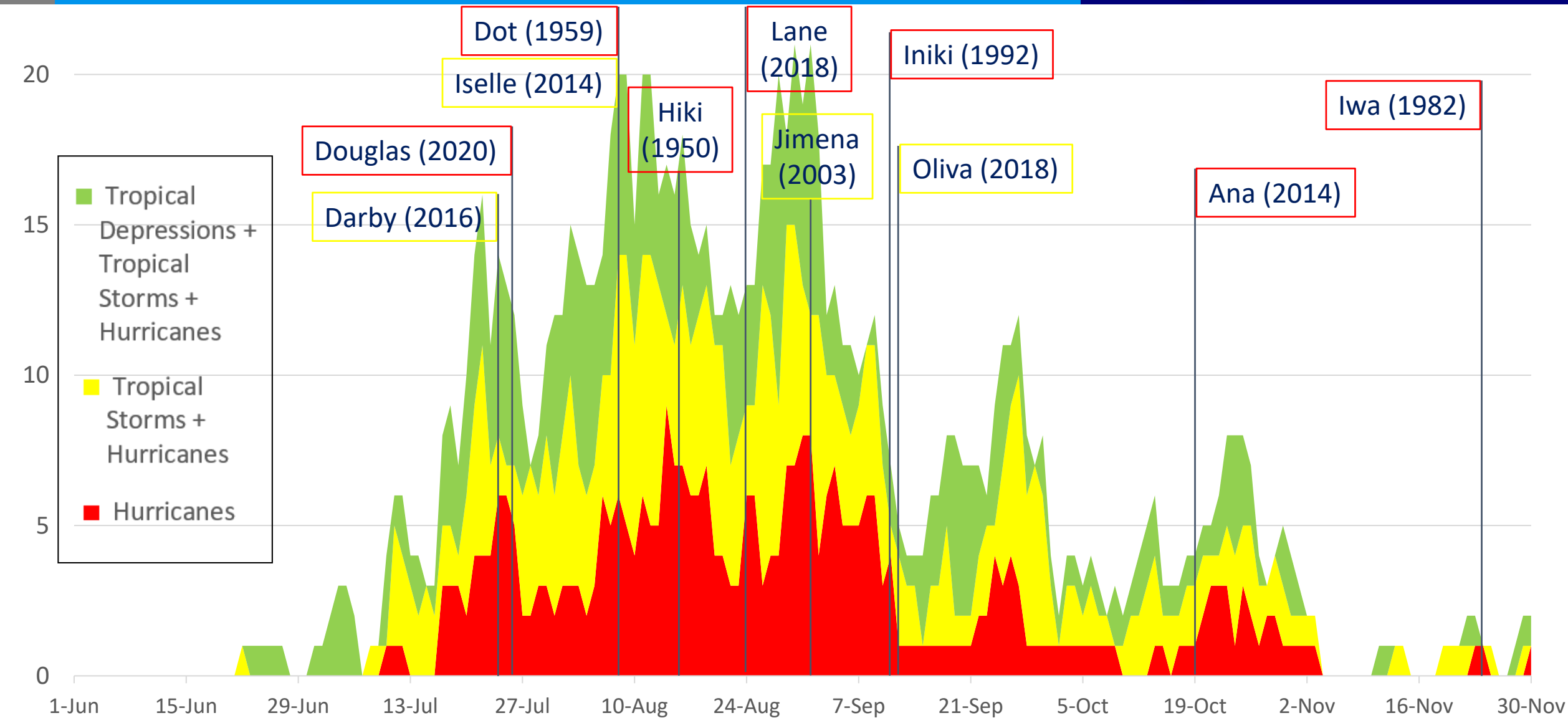


# Tropical Cyclone Activity By Day

Hurricanes/Tropical Storms/Tropical Depressions 1950-2020

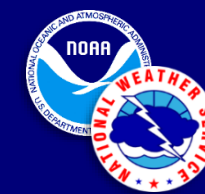


Central Pacific  
Hurricane Center

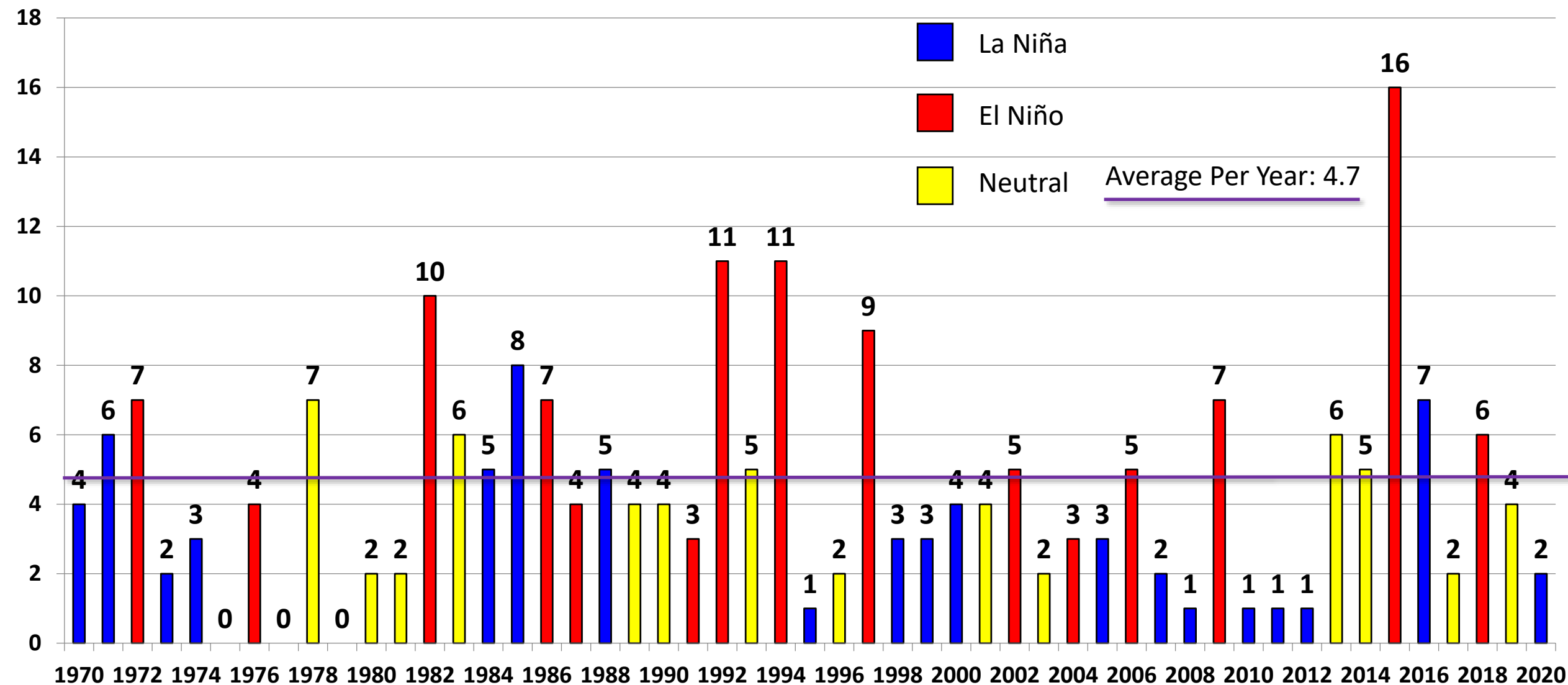


# Annual Tropical Cyclones since 1970

Central Pacific Tropical Cyclones by Year (1970 – 2020)

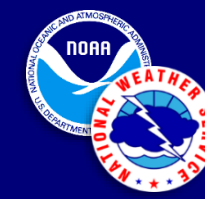


Central Pacific  
Hurricane Center

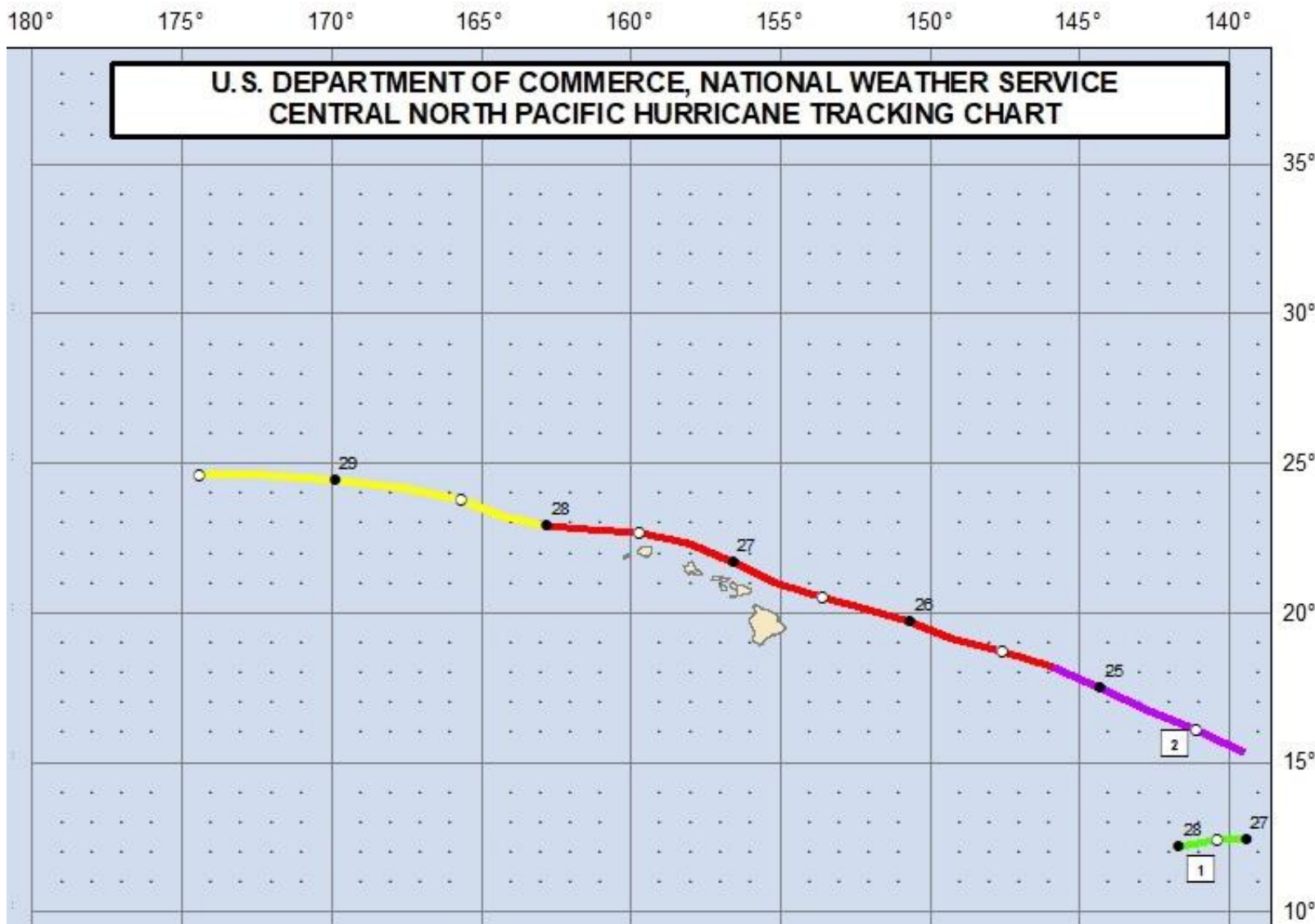


# 2020 Hurricane Season

## Two Tropical Cyclones



Central Pacific  
Hurricane Center

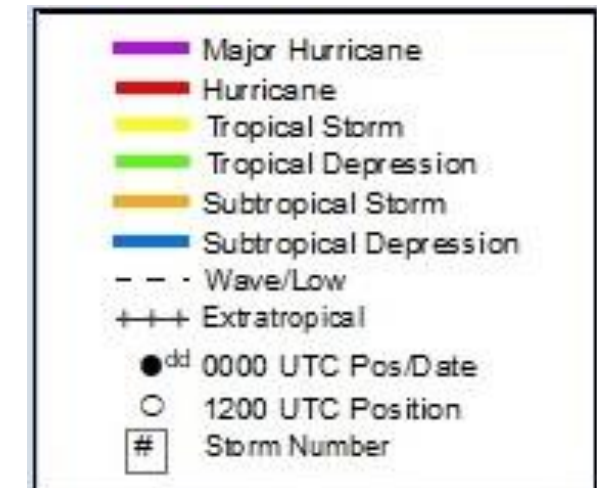


### 1. Boris

**Peak: Tropical Depression**  
**Fri June 26 to Sat June 27**  
**(06/27/20 to 06/28/20 UTC)**

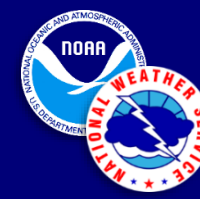
### 2. Douglas

**Peak: Category 4**  
**Thu July 23 to Wed July 29**  
**(07/24/20 to 07/29/20 UTC)**

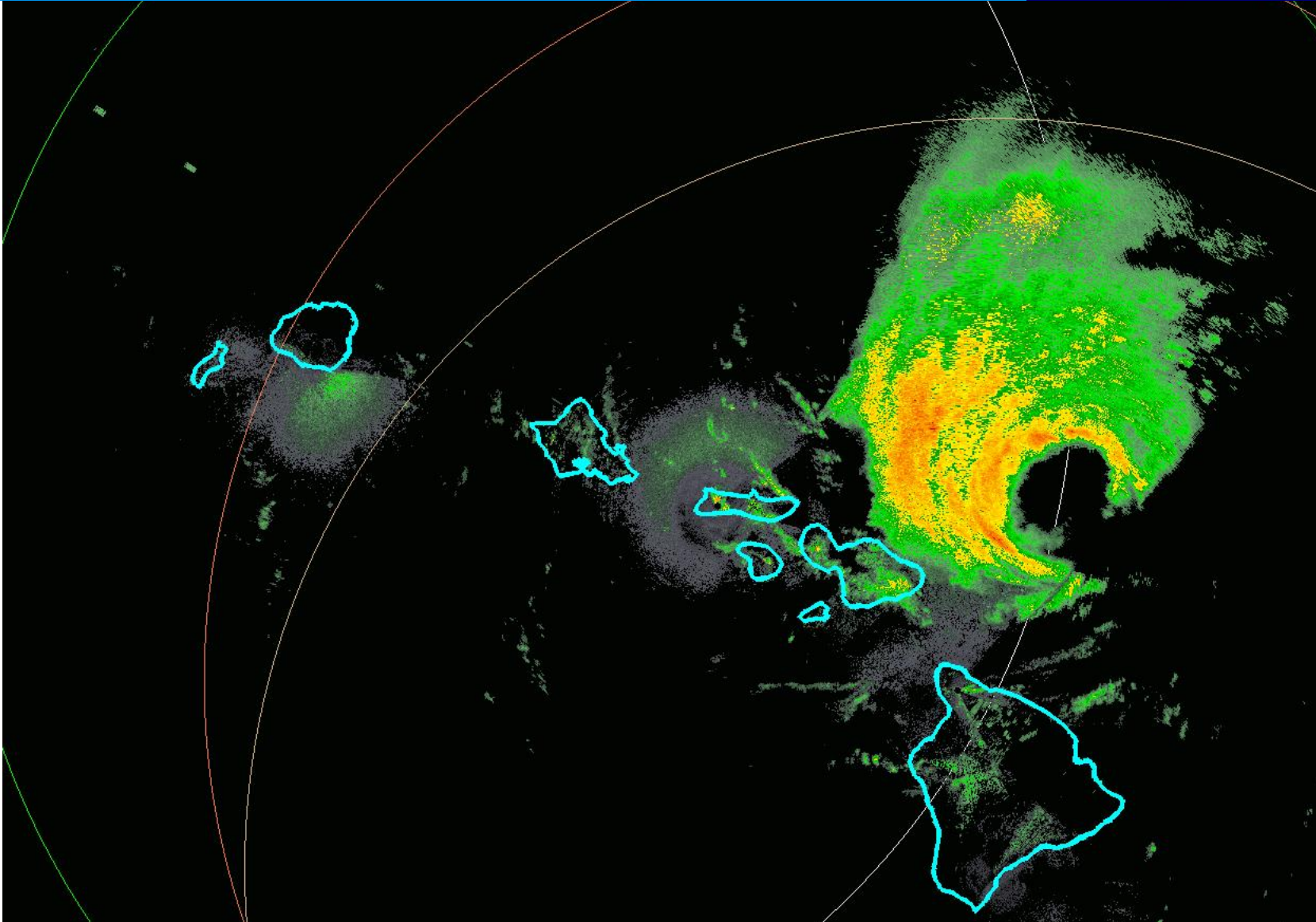


# Hurricane Douglas – Radar Composite

Too close for comfort

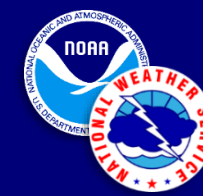


Central Pacific  
Hurricane Center

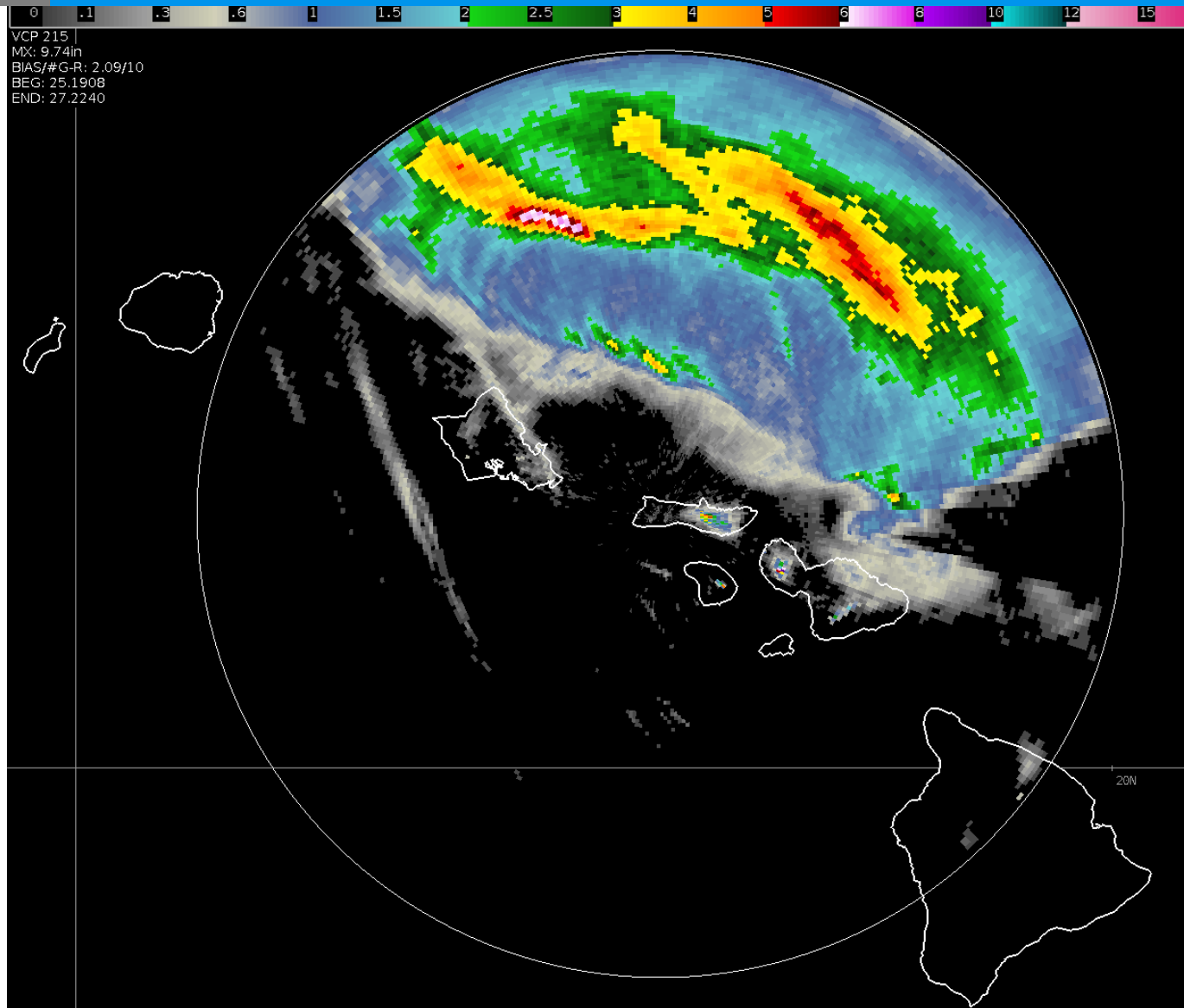


# Hurricane Douglas – Radar Rainfall

Too close for comfort



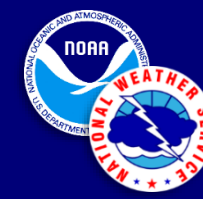
Central Pacific  
Hurricane Center



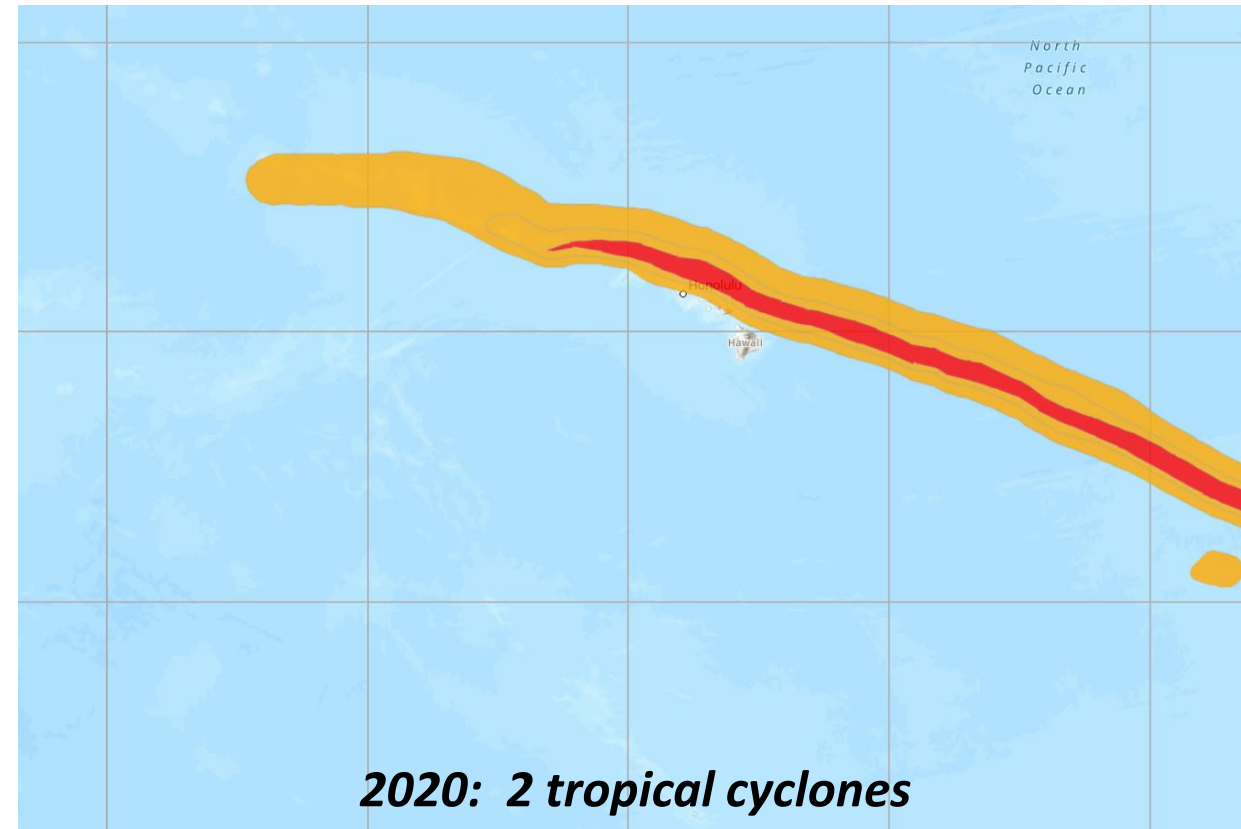
- **Peak Rainfall**  
48 hour rainfall 6 pm Sat 7/25  
through 6 pm Mon 7/27:
  - **Kauai County:**  
Mount Waialeale 6.35"
  - **Honolulu County:**  
Kahuku 2.18"
  - **Maui County:**  
Puu Kukui 5.20"
  - **Hawaii County:**  
Kawainui Stream 3.39"

# Composite Wind Field – 2017 vs 2020

Below-average hurricane seasons are not created equally



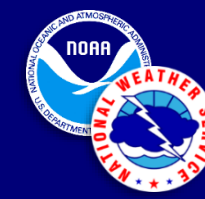
Central Pacific  
Hurricane Center



- **Orange: tropical storm ( $\geq 39$  mph); Red: hurricane ( $\geq 74$  mph)**

# ENSO Outlook

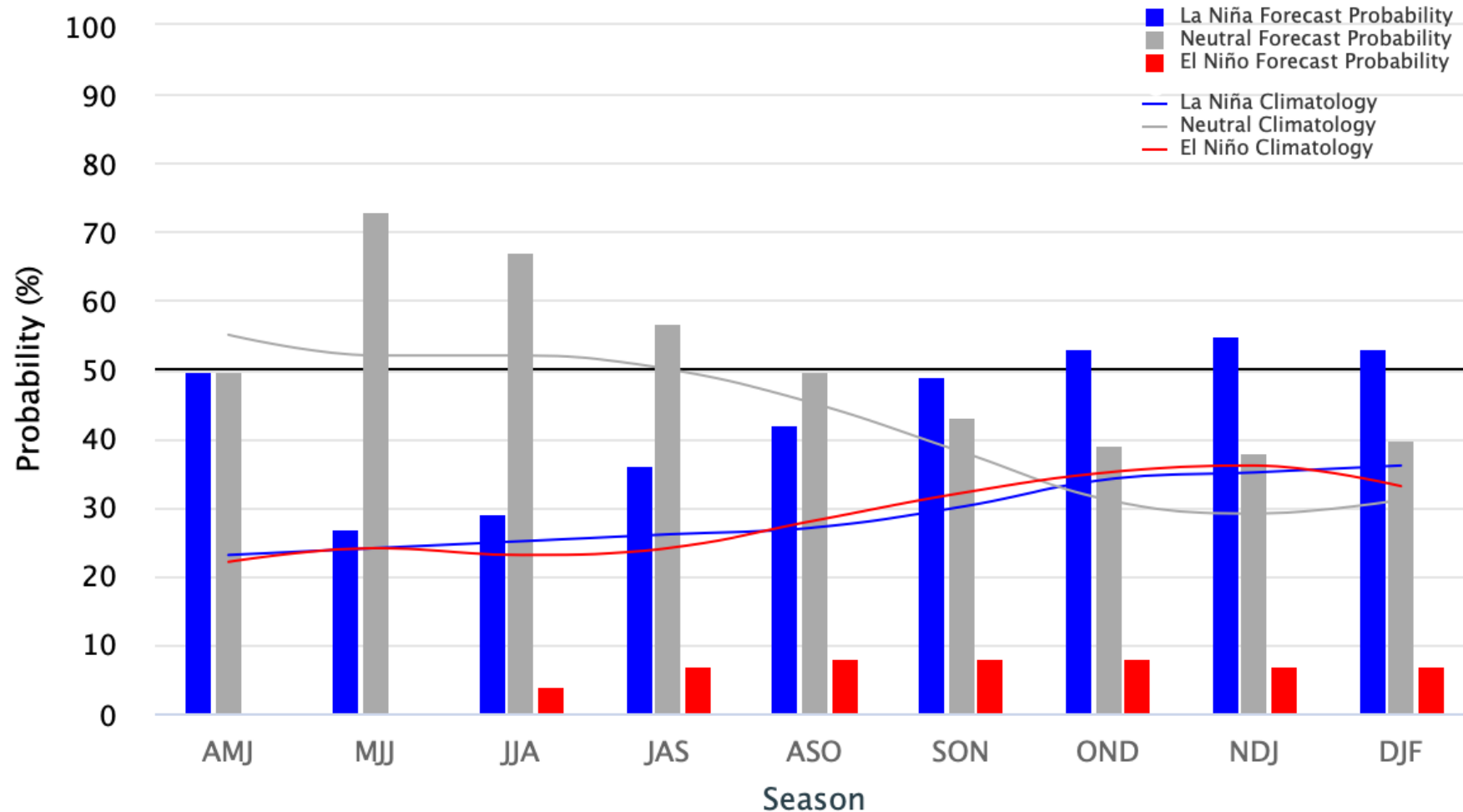
La Niña has ended; ENSO-neutral likely through summer



Central Pacific  
Hurricane Center

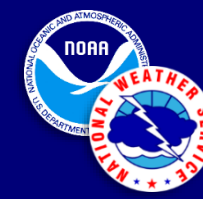
Early-May 2021 CPC/IRI Official Probabilistic ENSO Forecasts

ENSO state based on NINO3.4 SST Anomaly  
Neutral ENSO:  $-0.5^{\circ}\text{C}$  to  $0.5^{\circ}\text{C}$



# 2021 Hurricane Season – Outlook

Central Pacific: 2 to 5 Tropical Cyclones



Central Pacific  
Hurricane Center



NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Central Pacific Hurricane Center/Climate Prediction Center



2021 Central Pacific Season Outlook

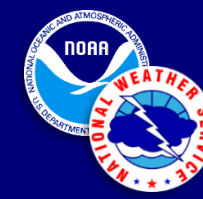
2-5 Tropical Cyclones

80% chance of a near to below normal season  
20% chance of an above normal season

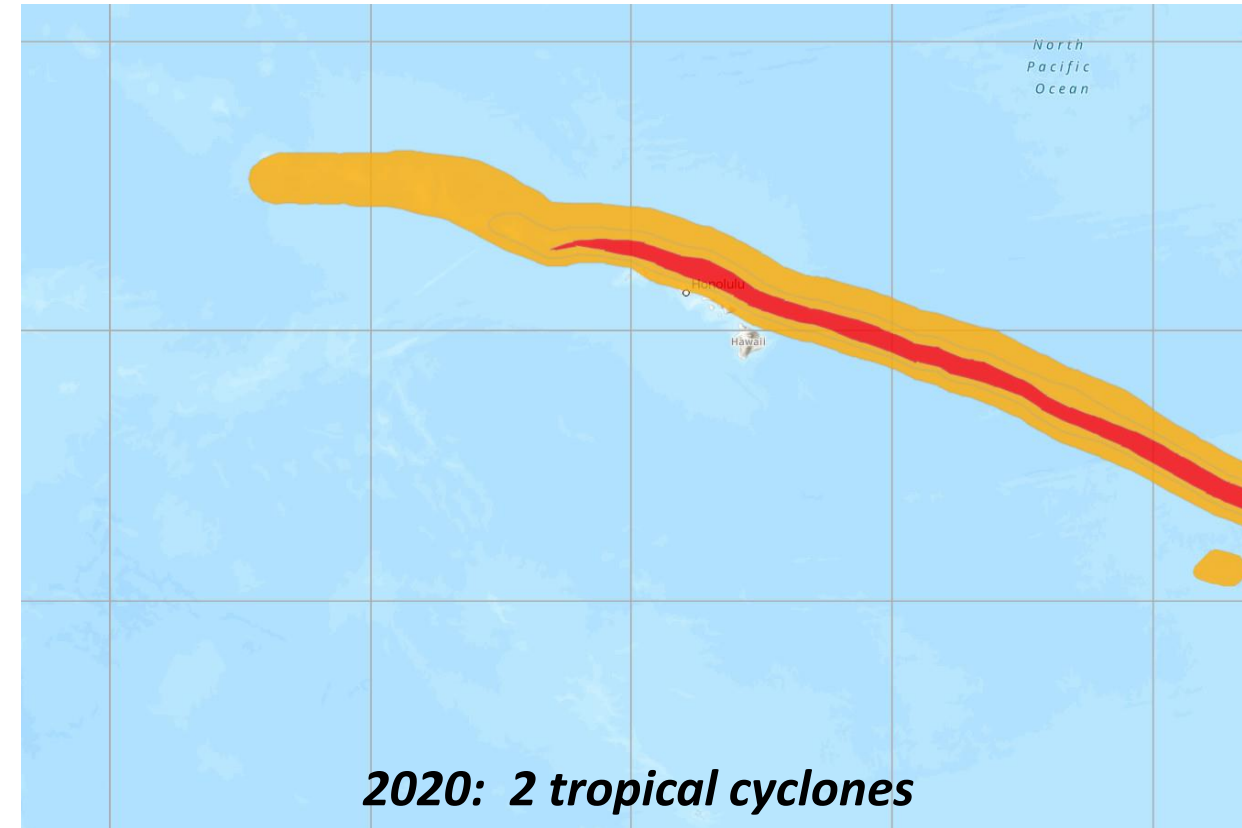
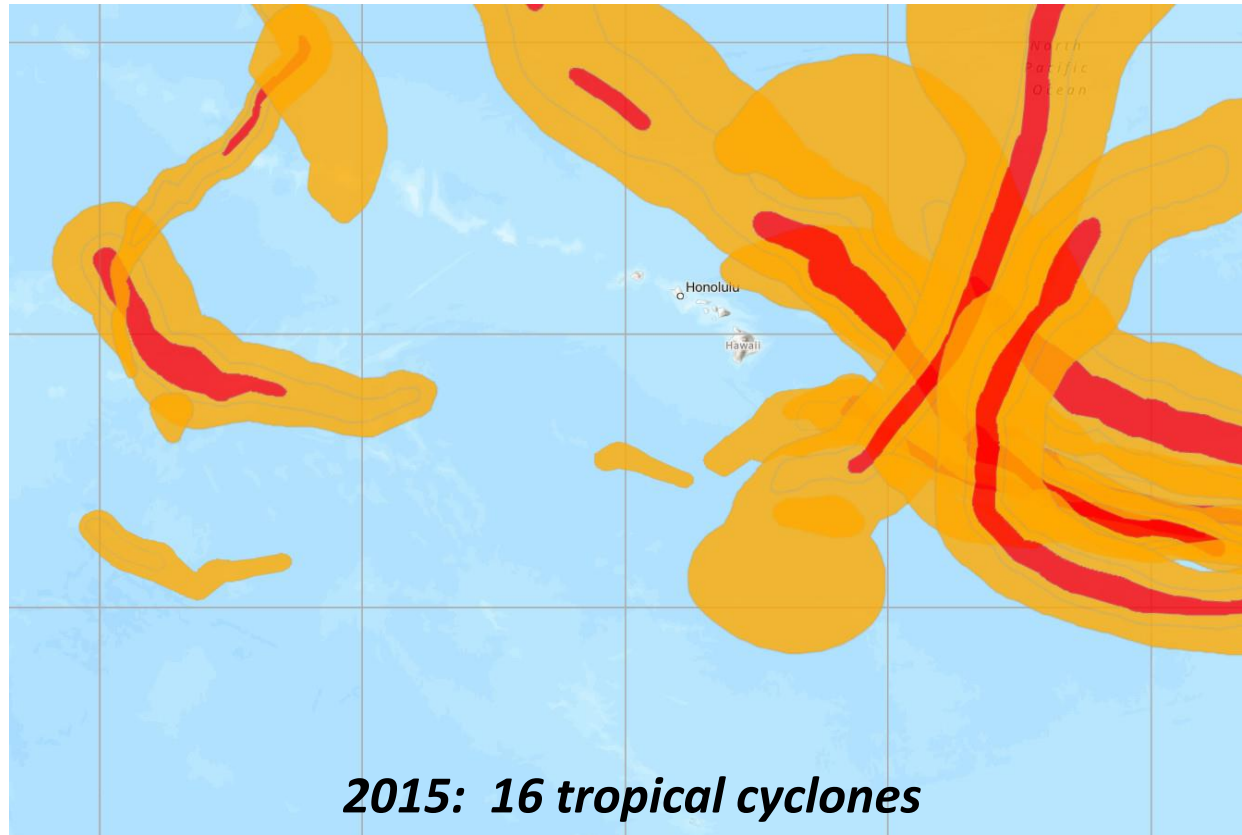
- **ENSO-Neutral likely through summer; possible transition to La Niña this fall**
- ***Does not address potential impacts to Hawaii***

# Composite Wind Field – 2015 vs 2020

Cliché: “It only takes one”



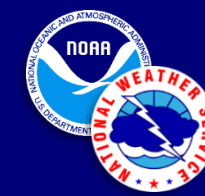
Central Pacific  
Hurricane Center



- **Orange: tropical storm ( $\geq 39$  mph); Red: hurricane ( $\geq 74$  mph)**

# Tropical Weather Outlook

Issued between June 1 and November 30



Central Pacific  
Hurricane Center

## Tropical Weather Outlook

NWS Central Pacific Hurricane Center Honolulu HI  
200 PM HST Wed Sep 26 2018

For the central North Pacific...between 140W and 180W:

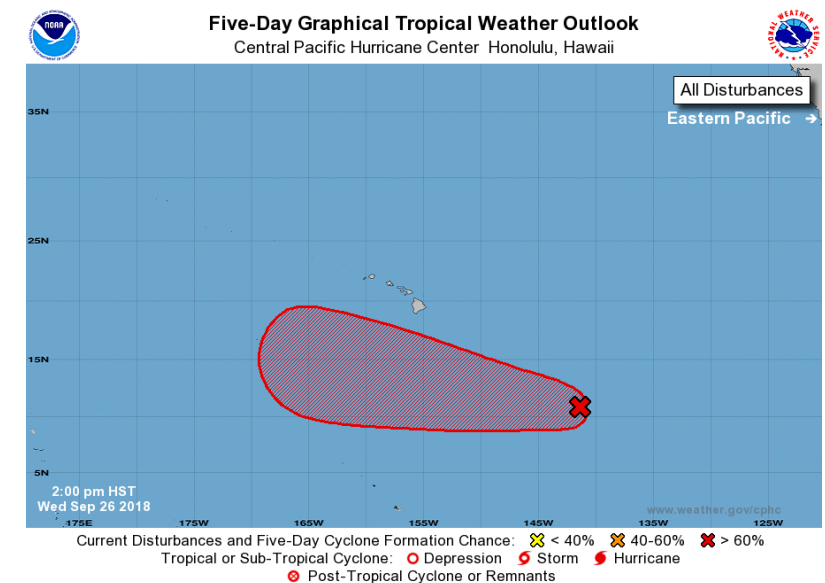
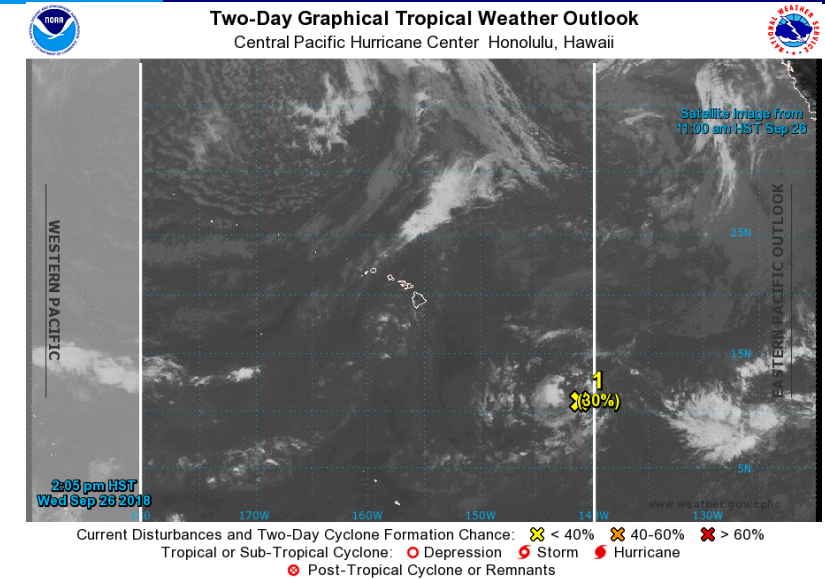
1. Showers and thunderstorms associated with a surface trough located about 990 miles southeast of Hilo, Hawaii are becoming slightly more organized, but continue to flare up and down in coverage and intensity. A low-level circulation center is now apparent on visible satellite imagery. Environmental conditions remain conducive for gradual development of this system over the next few days as it moves westward across the central Pacific.

\* Formation chance through 48 hours...low...30 percent.

\* Formation chance through 5 days...high...70 percent.

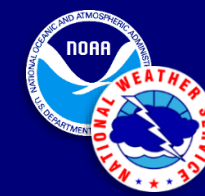
Elsewhere, no tropical cyclones are expected during the next 5 days.

Forecaster TS

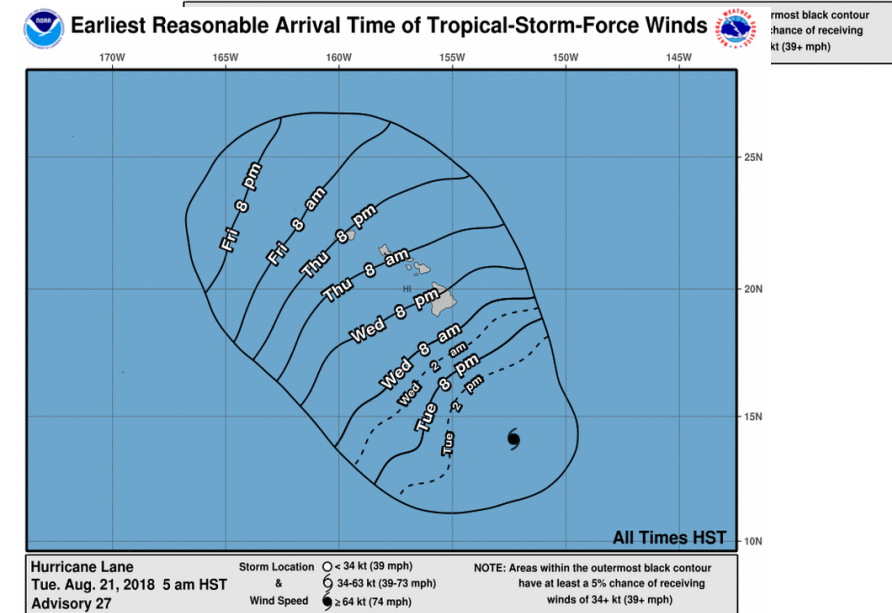
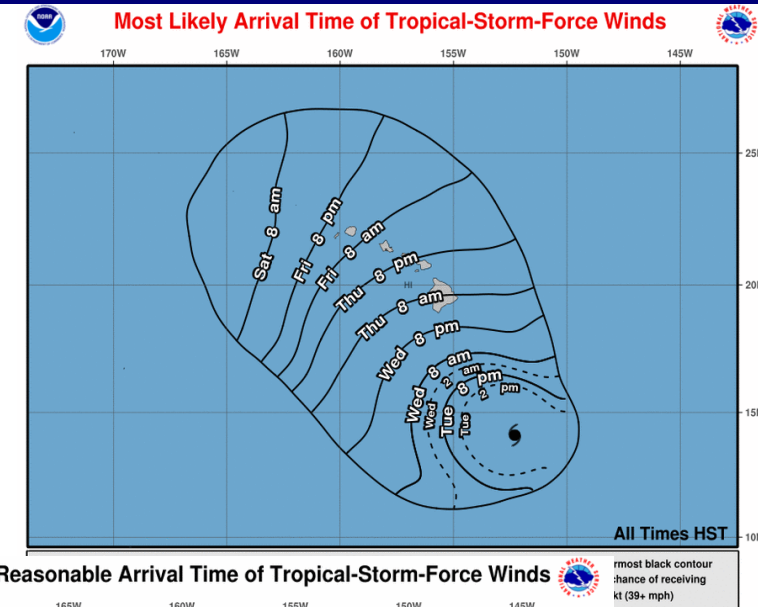
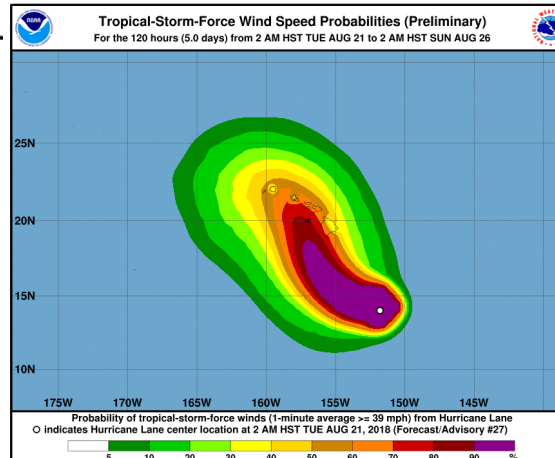
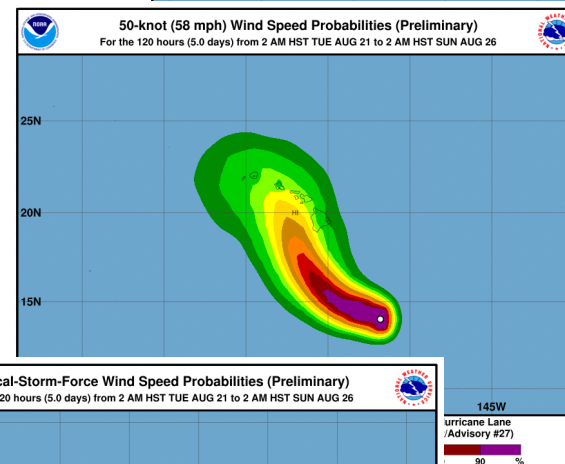
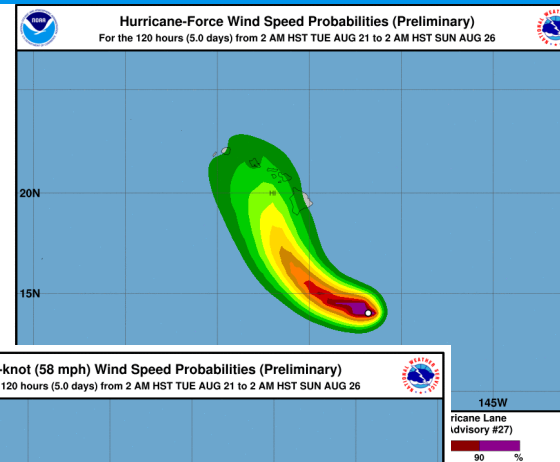
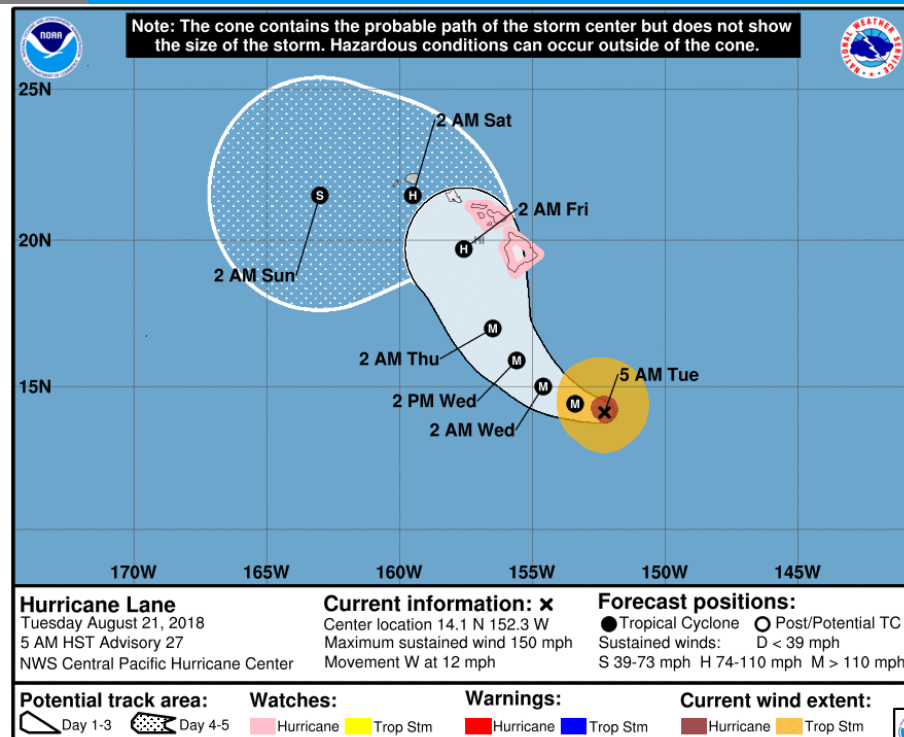


# Tropical Cyclone Graphics

## Hurricane Lane Example – Tuesday Aug 21, 2018, 5 am HST



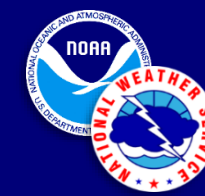
## Central Pacific Hurricane Center



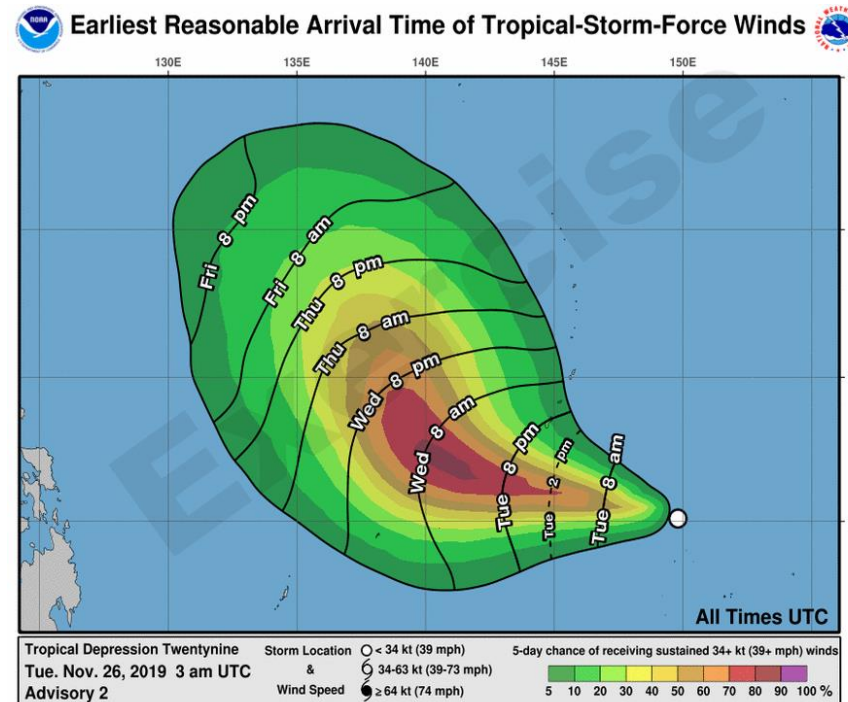
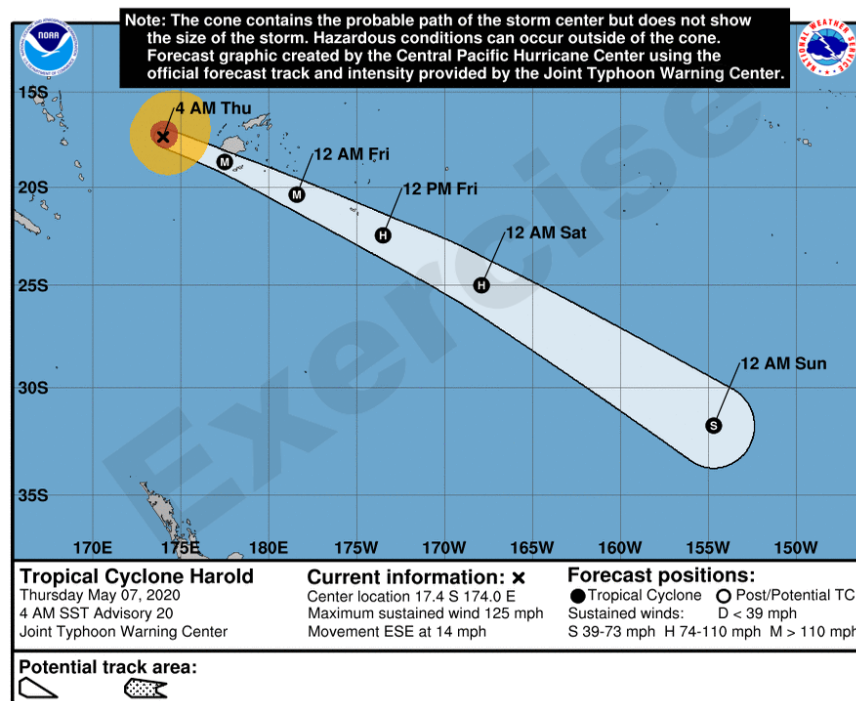
- Track, Wind Speed Probabilities, Time of Arrival
- Updated every 6 hours: 5 am/pm, 11 am/pm HST

# Experimental West/South Pacific Graphics

Soliciting comments through April 1, 2022



Central Pacific  
Hurricane Center



- NWS suite of graphics based on JTWC forecasts
  - Track/error cone (based on JTWC average errors)
  - Wind speed probabilities
  - Time of arrival

*Current live version (if active tropical cyclone):*

Western North Pacific:

<https://www.weather.gov/hfo/wpacTropical>

South Pacific:

<https://www.weather.gov/hfo/spacTropical>

*Examples:*

Western North Pacific:

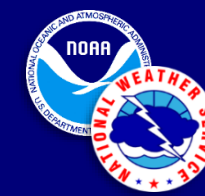
<https://www.weather.gov/hfo/wpacTropicalExample>

South Pacific:

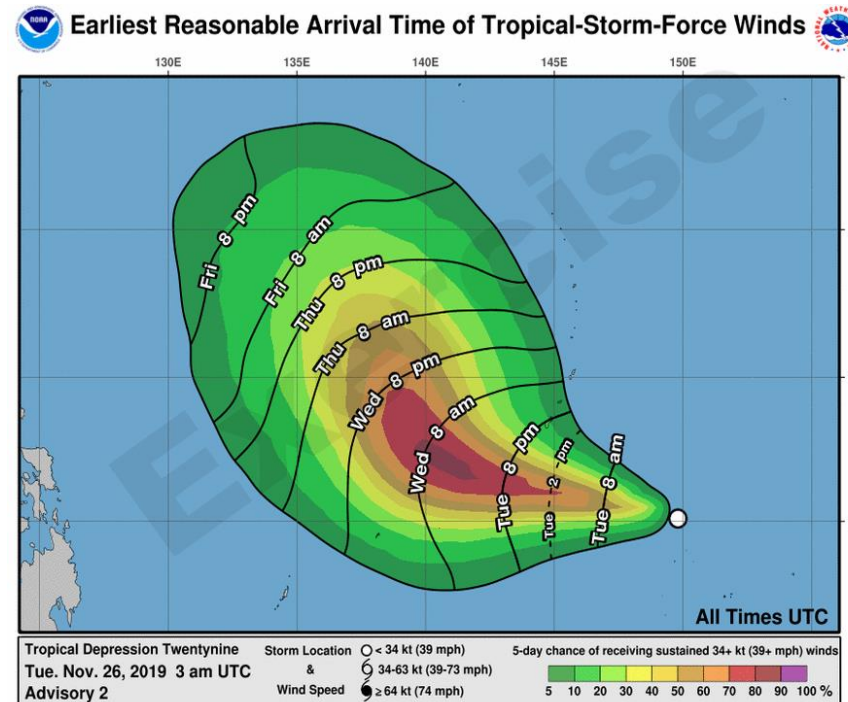
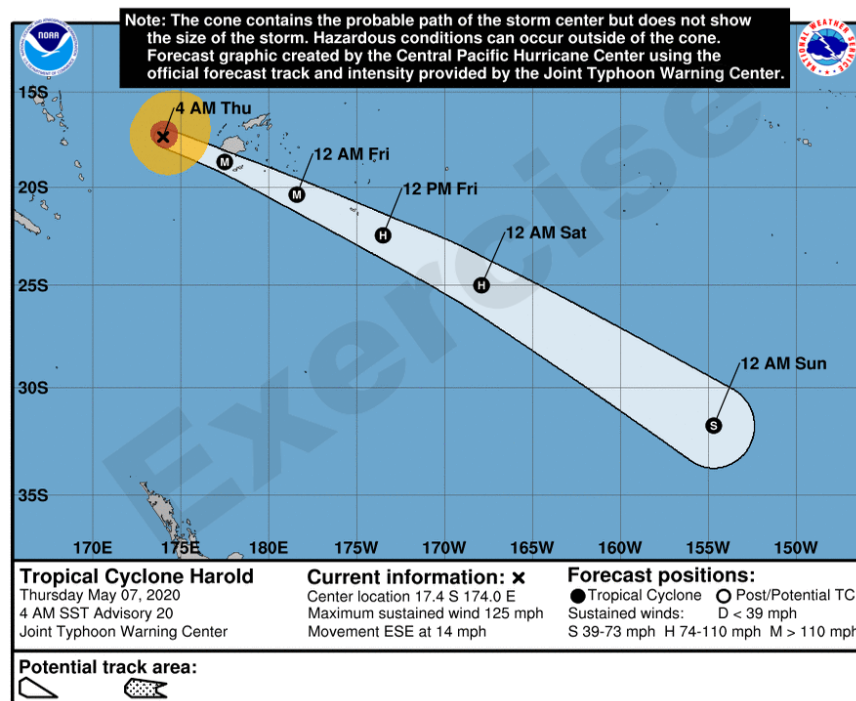
<https://www.weather.gov/hfo/spacTropicalExample>

# Experimental West/South Pacific Graphics

Soliciting comments through April 1, 2022



Central Pacific  
Hurricane Center



- NWS suite of graphics based on JTWC forecasts
  - Track/error cone (based on JTWC average errors)
  - Wind speed probabilities
  - Time of arrival

- Error cone/cone of uncertainty:

[https://www.surveymonkey.com/r/TC\\_TrackGraphics\\_SouthPacific\\_WesternNorthPacific](https://www.surveymonkey.com/r/TC_TrackGraphics_SouthPacific_WesternNorthPacific)

- Wind speed probabilities:

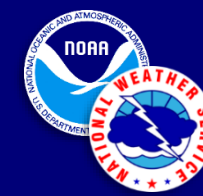
[https://www.surveymonkey.com/r/TC\\_SurfaceWindSpeedProb\\_SouthPacific\\_WesternNorthPacific](https://www.surveymonkey.com/r/TC_SurfaceWindSpeedProb_SouthPacific_WesternNorthPacific)

- Time of arrival of tropical-storm-force winds:

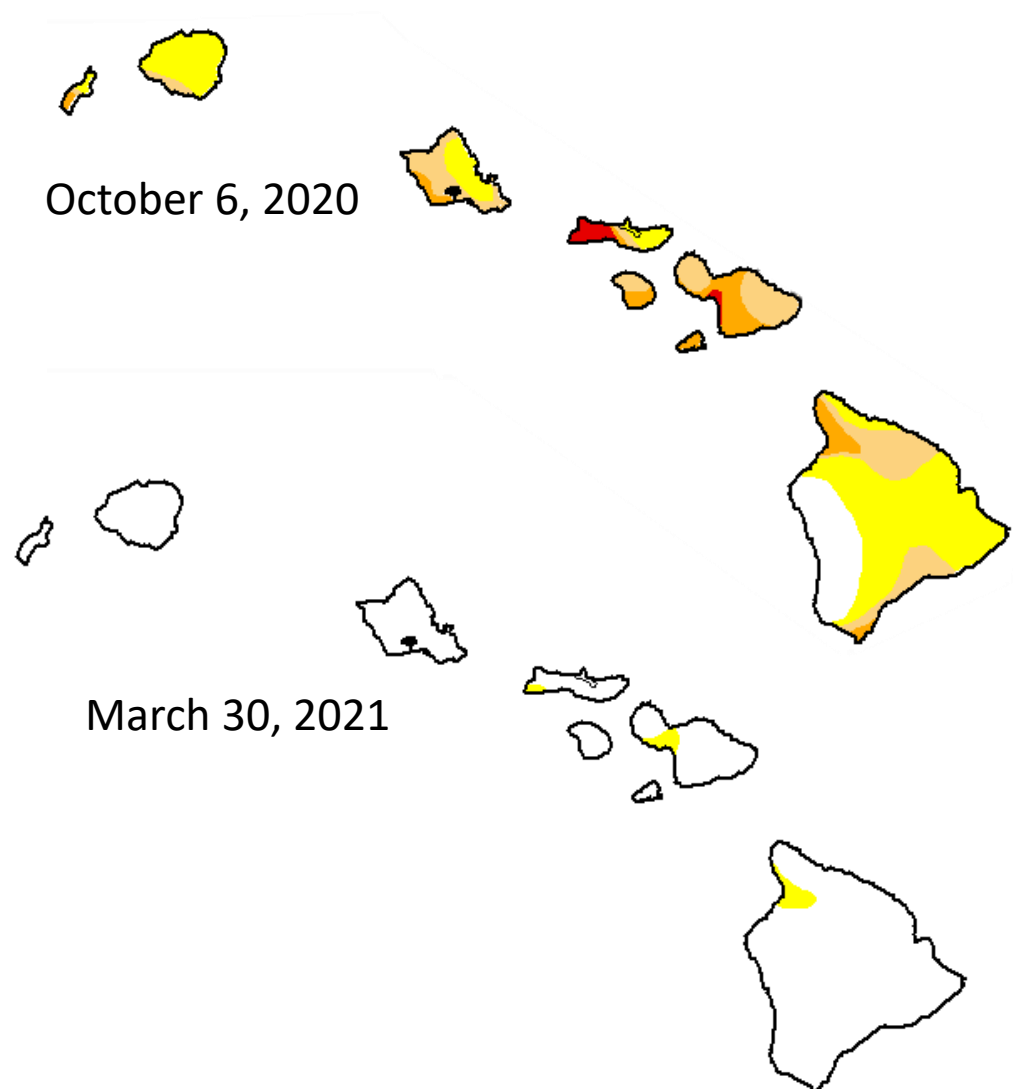
[https://www.surveymonkey.com/r/Arrival\\_TropicalStormForceWindsGraphics\\_SouthPacific\\_WesternNorthPacific](https://www.surveymonkey.com/r/Arrival_TropicalStormForceWindsGraphics_SouthPacific_WesternNorthPacific)

# Hawaii Wet Season Recap

## Drought Monitor



Central Pacific  
Hurricane Center

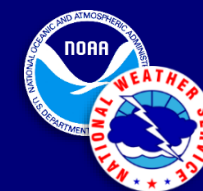


8<sup>th</sup> Wettest in the last 30 years

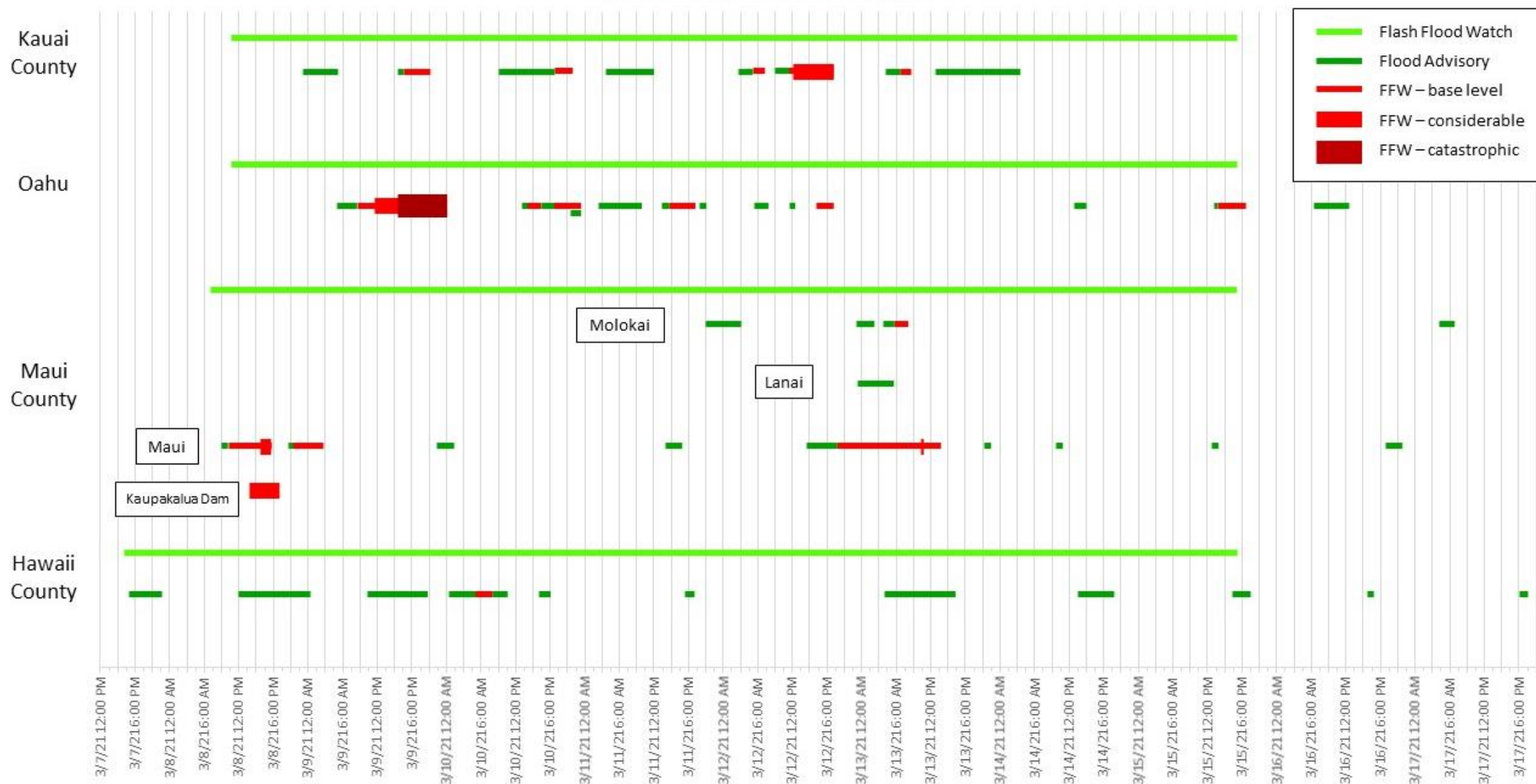
Islands	Rain Totals (of average)
Kauai	120%
Oahu	80-120%
Maui County	70-110%
Big Island	>100% (except Kohala 30-70%)

# Hawaii Wet Season – Flash Flooding

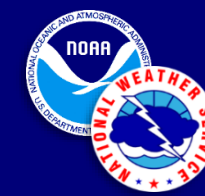
Timeline of flash flooding – March 7<sup>th</sup> through 17<sup>th</sup>, 2021



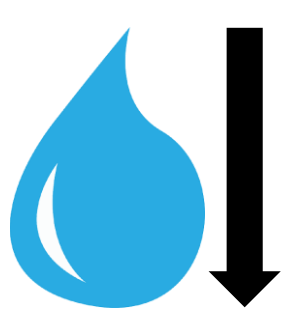
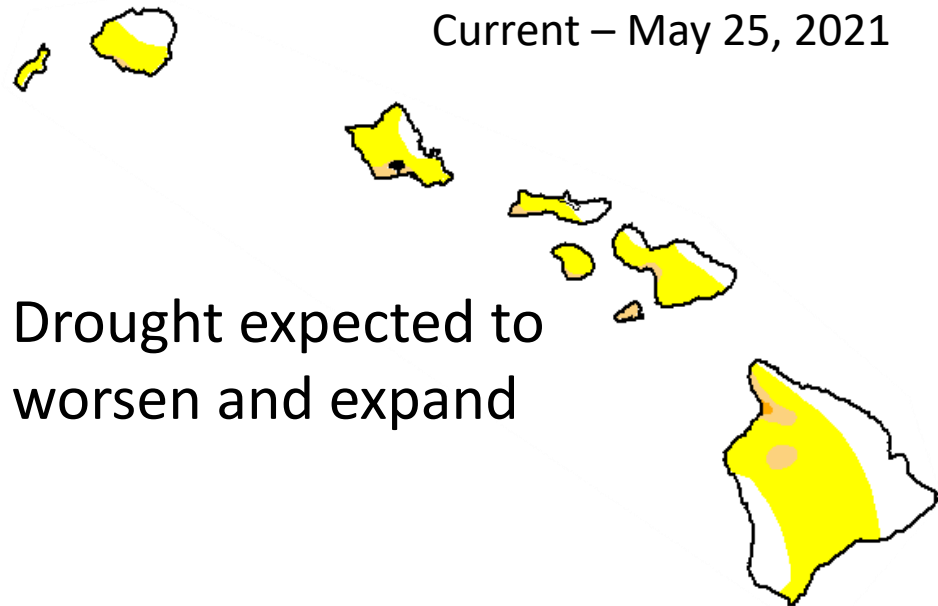
Central Pacific  
Hurricane Center



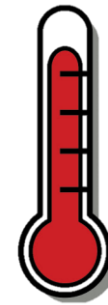
# Hawaii Dry Season Outlook



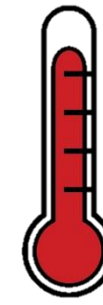
Central Pacific  
Hurricane Center



Outlooks favor below normal precipitation through the dry season

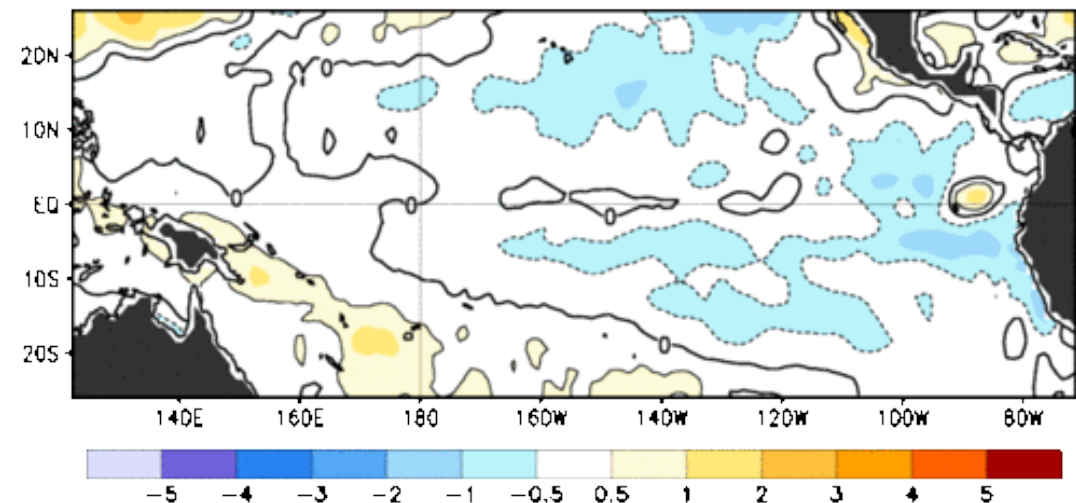


Below normal  
mean air  
temperatures for  
**Hilo** and **Kahului**

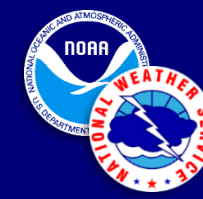


Equal chances for  
abv, blw, near  
normal for  
**Honolulu** and  
**Lihue**

Observed Sea Surface Temperature Anomalies (°C)



7-day Average Centered on 19 May 2021



## *Any Questions?*

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Central Pacific Hurricane Center  
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808-772-0641 (cell)

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808-725-6012 (office)  
808-772-0684 (cell)